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FOLLOW UP STUDY OF CHILDREN WHO PARTICIPATED IN A PREVENTIVE MENTAL HEALTH PROGRAM.

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THE PURPOSE OF THIS INVESTIGATION WAS TO FOLLOW-UP, AS SEVENTH GRADERS, TWO GROUPS OF CHILDREN WHO HAD PARTICIPATED IN A PREVENTIVE MENTAL HEALTH PROGRAM IN THE SCHOOL SETTING AND HAD BEEN EVALUATED FOR THEIR POTENTIAL FOR HAVING ADJUSTMENT PROBLEMS. THE SEVENTH GRADE EVALUATIONS WERE COMPREHENSIVE, INCLUDING A VARIETY OF SCHOOL RECORD AND ACHIEVEMENT MEASURES, PERSONALITY AND BEHAVIOR MEASURES, AND TEACHER AND PEER EVALUATIONS. THIS EVALUATION PARALLELED IN FORM AND CONTENT THE ONE USED AT THE THIRD GRADE LEVEL. CHILDREN WHO HAD BEEN IDENTIFIED IN THE PRIMARY GRADES AS HAVING MANIFEST OR INCIPIENT PSYCHOLOGICAL PROBLEMS CONTINUED, AT THE SEVENTH GRADE LEVEL, TO GIVE EVIDENCE OF INEFFECTUAL FUNCTIONING IN MANY BASIC AREAS OF PERFORMANCE. THE EARLY DETECTED DIFFICULTIES, LEFT UNTREATED, HAD THUS REMAINED ESSENTIALLY STABLE. FOLLOW UP COMPARISONS BETWEEN CHILDREN EXPOSED TO A PREVENTIVE PROGRAM AND THOSE NOT SO EXPOSED INDICATED THAT THE ORIGINAL BENEFICIAL RESULTS OF THE PROGRAM WERE NOT CLEARLY DEMONSTRABLE AT THE FOLLOW UP POINT. THE LATTER ANALYSIS, HOWEVER, WAS CLOUDED BY DIFFERENTIAL ATTRITION RATES IN THE TWO SAMPLES. LONGITUDINAL CORRELATIONAL DATA INDICATED A REASONABLE AMOUNT OF STABILITY OF EVALUATION INDICES OVER A FOUR YEAR PERIOD, SUGGESTING THAT EARLY PERFORMANCE (DURING THE PRIMARY YEARS) MAY PREDICT WELL TO LATER SCHOOL FUNCTIONING. (AUTHOR)

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FOLLOW UP STUDY OF CHILDREN WHO PARTICIPATED IN A PREVENTIVE MENTAL HEALTH PROGRAM

June, 1967

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15. ABSTRACT *(250 words max.)* The purpose of this investigation was to follow-up, as 7th graders two groups of children who had participated in a preventive mental health program in the school setting and had been evaluated for their potential for having adjustment problems. The 7th grade evaluations were comprehensive, including a variety of school record and achievement measures, personality and behavior measures, and teacher and peer evaluations. This evaluation paralleled in form and content the one used at 3rd grade level.

Children who had been identified in the primary grades as having manifest or incipient psychological problems continued, at 7th grade level, to give evidence of ineffectual functioning in many basic areas of performance. The early detected difficulties, left untreated, had thus remained essentially stable. Follow up comparisons between children exposed to a preventive program and those not so exposed indicated that the original beneficial results of the program were not clearly demonstrable at the follow up point. The latter analysis however was clouded by differential attrition rates in the two samples.

Longitudinal correlational data indicated a reasonable amount of stability of evaluation indices over a four year period suggesting that early performance (during the primary years) may predict well to later school functioning.

16. RETRIEVAL TERMS *(Continue on reverse)*

Early detection of emotional disorder
Prevention of emotional disorder
Mental health in the schools.

17. IDENTIFIERS

Figure 3. ERIC Document Resume

Follow-up Study of Children Who Participated in a Preventive Mental Health Program

Project No. 5-054-2-12-1
Contract No. OE-6-10-042

by

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with the collaboration of

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Introduction

Background of the Problem

The basic impetus for developing a project such as the one to be reported in the present monograph derives from two assumptions. The first is that the child's ability to profit maximally from his education depends on emotional factors as well as intellectual ones. Secondly, it is assumed that the school setting has a profound influence upon the emotional state of the child, whether this influence is explicitly recognized or not. The latter point has been emphasized strongly by President Fischer of Teachers College (12).

If these two assumptions are accepted, it behooves the educator to strive to create an optimal setting for learning, one which looks after emotional needs as avidly as it attempts to enhance intellectual development. Professional trends in recent decades suggest that school administrators have, indeed, accepted these assumptions. The numbers of school psychologists, school social workers, consulting psychiatrists and other members of mental health oriented professions who have been employed by the schools in the past few years has risen dramatically. Despite this fact, however, we find that professionals are hard put to keep up with the mental health service demands of the school system and, perhaps as a result, they are seeing, primarily, children whose pathology is well-entrenched and, therefore, most difficult to reverse. The milder problem which might well be dealt with more readily must simply be ignored in favor of the florid emergency.

One answer to this problem would seem to be the employment of more and more helping professionals so that the sheer weight of numbers might keep pace with the needs of all children, both the seriously and mildly disturbed. If this were not infeasible economically, it would be from another important viewpoint. There simply is not enough professional mental health manpower available to staff the school systems needing their services. As Albee (1) has pointed out, the helping professions are already extremely short-handed and the prospects for the future suggest that social need will continue to outstrip available services.

Accordingly, it seems vital that present assumptions about the optimal organization and delivery of mental health related services in the school setting be carefully re-examined. Particularly, it seems necessary to question the efficacy of the one-to-one treatment and diagnostic model in view of the current needs of our society, even if we could grant that it was an optimally effective one. That such questioning has begun in several places throughout the country is attested to by a variety of school programs which have been developed in recent years.

In some programs the focus has been on parents of school children in the hope that by creating attitude change in them, their children

might benefit in ways which would forestall emotional problems (13, 14, 19). Another approach which has been used in recent years is to bring helping professionals into close contact with teachers and other school personnel in the hope that these people, who have day-to-day contact with the child, can be made the primary therapeutic agents with the proper guidance and support (6, 9, 14, 19). Finally, some programs have attempted to work directly with the disturbed child but through formats which are quite different from the traditional (11, 14, 15).

All of these programs share a common element in that the highly trained professional tends to recede from a role in which his primary contact is with the disturbed person. Instead, consultation with significant agents in the lives of the school child seems to be a significant new role which is evolving. One effect of this is to bring the impact of the professional's activity to a much wider number of children than has been true in the past. Such preventive efforts have been augmented by innovative approaches to the problem of secondary prevention.

Concern with secondary prevention rests upon the development of efficaceous procedures for early identification of emotional dysfunction. This has led some workers to devise techniques for measuring self, peer and teacher perception of young school children. Using such techniques, Bower (3) and his co-workers have been able to demonstrate that children identified as emotionally disturbed while in the fourth to sixth grades were seen as significantly poorer with respect to achievement, self-perception, peer perception, and teacher perception when compared to their non-disturbed peers.

The present study is a direct outgrowth of a project which has been clearly in the tradition of the innovative approaches already cited. For several years an experimental program in the prevention of emotional disorders in school children was conducted in the primary grades of a single elementary school (School #33) in Rochester, New York. This was a rather old school located in a once fairly fashionable neighborhood now in deterioration. The children attending the school were primarily from lower middle class or upper lower class backgrounds. Ethnically the school approximated the breakdown for the city at large, except for an underweighting of Negro and Jewish children. The program had two primary objectives: 1) to test the effectiveness of a specific program for preventing the development of emotional disturbance; and 2) to develop techniques for identifying, as early as possible, those children who either already manifested or else seemed prone to developing emotional problems.

The core of the preventive program which was instituted in the primary grades of a single elementary school in Rochester, New York (No. 33 school) included: 1) <u>diagnostic psychological evaluation</u> of all first grade children within several months after the start of the school year; 2) <u>social work interviews</u> with mothers of first grade children,

designed not only to elicit certain background information concerning the child and the family situation, but also to create an image of the school as an interested, friendly and helping organism; 3) school personnel conferences in which members of the school staff, particularly the teachers, were provided with an on-going opportunity to meet with members of the mental health clinical staff to discuss problems relating to individual children, to classroom management, and to the role of being a teacher; 4) consulting psychiatrist who was made available as a resource person in individual and small group conferences with the mental health clinical staff as well as the classroom teacher; 5) after school groups of more seriously upset youngsters which met weekly for 20 sessions for a variety of physical, dramatic and construction activities under the direction of specially selected leaders; 6) parent meetings which were organized and conducted in "buzz session" fashion based on such themes as "Discipline and Authority," "Sex Education," and "The Changing Roles of Parents;" 7) teacher meetings which were organized around themes of interest to the teaching staff of the experimental school and conducted by both the members of the project staff as well as community leaders in the area of mental health. Further details of this program have been reported in a monograph describing the project (7).

Assessment of the effectiveness of this program was based on a battery of objective measures, some deriving from school records, some standardized tests, and a few especially designed instruments. As a group, these measures reflected achievement, personality and adjustment variables in the child, and attitudinal factors in the parents and teachers. These measures, with only a few modifications, were applied to two consecutive year groups in the spring of 1961 and again in the spring of 1962. In each instance the target groups consisted of 3rd grade youngsters who had been exposed to the program for three years, and their parents and teachers. Two control schools, each demographically comparable to the experimental school, provided a frame of reference for the evaluation.

The results of the analyses of these two groups have been reported in two separate publications (7, 8). The findings for the two years are reasonably consistent with each other. The combined findings based on data from both year groups provides the basis for several conclusions: 1) there is a cluster of salutary correlates of the experimental prevention program reflected in adjustive, performance, achievement and sociometric measures of children who have been exposed to it for three years; 2) children who, while in the first grade, are manifesting ineffective behavior or indicants that they are likely to do so are, by the end of the third grade, performing less adequately in school, scoring lower on standard achievement tests, showing greater signs of maladjustment as measured by both objective tests and behavioral ratings, being rated more negatively sociometrically, and manifesting more physical complaints in school than their better adjusted peers. The foregoing two sets of findings are, in each instance, considerably

stronger in the second year group (1961-62) than the first (1960-61). These studies also determined that the manifestly or potentially disturbed group numbered over one-third of the first grade class.

These findings pointed up the rich potential of a preventive approach in the school setting. The very high incidence of early pathology and its already serious consequences within the first three school years suggest that there is here a fertile domain for the intense exploration of secondary preventive measures. One additional study is necessary to bolster this position in the face of possible objections that either the successes of the experimental group or the deficiencies of the group judged to be destined for difficulty are ephemeral. This is a follow-up study done after several years have intervened since the program was experienced. Such a follow-up is the purpose of the present study.

Objectives and Hypotheses

The overall objective of this study was to follow-up, after four years, two groups of 7th grade school children who, during their first three school years, were exposed to a program to prevent the occurrence of emotional disorders. Children from the experimental program were compared to their controls on the same measures on which earlier comparisons were based. Within the experimental group similar comparisons were made between youngsters designated as Red Tag children (those identified early as being prone to maladjustment) and Non-Red Tag children (those seen to be well adjusted on early screening). The central issue reflected in this latter analysis is that of the enduring consequences of early detected dysfunction. Finally, such a longitudinal study permits one to assess the stability of scores on the various measures used and to determine which ones relate most highly to later adjustment. Two principal hypotheses were advanced as follows:

A. The salutary correlates of the experimental prevention program, indicating better adjustment, performance, achievement and higher sociometric status in children who have been exposed to it for three years, will continue to be evident in these same youngsters at the 7th grade level.

B. Children identified early in their school career as having moderate to severe emotional disorders will, if left untreated for their specific problems, over time, continue to show greater signs of maladjustment both on objective tests and behavioral ratings, will obtain lower scores on standard achievement tests, will be rated more negatively by their peers sociometrically and will manifest more physical and attendance problems throughout their school careers and at the 7th grade level than their non-disturbed peers.

C. A third, less central purpose of the investigation is that of studying empirically the stability of certain school record,

adjustment and personality indices, over time.

Method

Procedure

This study was set up on a two-year basis to make possible the comparison of two consecutive year groups. The design, procedures, instrumentation and methods of data analysis were virtually identical in both instances. The only exception was that several measures were not available for groups from both years. The subjects, though structurally comparable and drawn from the same population, were independent for the consecutive samples, thus permitting an initial test of the stated hypotheses as well as a single cross-validation.

Hypothesis A (the long-range effects of the preventive program) was tested by comparing each year's experimental group youngsters who had participated in the program during their first three school years with their own controls (youngsters from demographically comparable schools but not having such a preventive program) who were matched with respect to socio-economic and ethnic background and IQ. The independent variable was the three years of exposure to the prevention program. The dependent variables include the 7th grade status of all subjects with respect to a variety of school record, achievement, objective personality measures as well as behavioral and sociometric ratings. All of these measures are described below.

Hypothesis B tests the subsequent functioning of children in whom early indicants of emotional disturbance had been detected. Here the critical group consisted of those youngsters within the experimental school for whom a diagnosis of moderate to severe, manifest or incipient, emotional pathology had been established during the first three school years (designated as Red Tag children). The comparison group included those youngsters in whom no such evidence of pathology had been detected during the same period (designated as Non-Red Tag youngsters). This hypothesis is evaluated only within the experimental school since no comparable early detection program existed in the original control schools. The independent variable in this case is presence or absence of early diagnosed emotional pathology, while the dependent measures (taken at the 7th grade level) are the same as those indicated for the test of Hypothesis A.

Subjects

The subjects of the present study are those 7th grade youngsters (in 1965 and 1966) who remained in the experimental and control schools and had been part of the initial program evaluation as 3rd graders (in 1961 and 1962). Since some considerable attrition is inevitable in such groups, the Ns for this study are lower than the Ns in the original studies. Furthermore, it was necessary to compare subjects who remained in the E and C schools with those who had departed in order to ensure

that no radical change had come about in the basic composition of these groups as a result of attrition. If this were found to be the case, the original matching procedure would now be invalidated and any differences between presently remaining groups could be due to the improper matching.

The 1961 Group

For the 1961 group it was found that, within the E school, 66 of the original 108 children remained; of these there were 43 Non-Red Tag youngsters (25 had departed) and 23 Red Tag children (17 had departed). A chi-square comparing the numbers of Red Tag and Non-Red Tag youngsters present and departed was not significant. Within the C school 182 of the 284 who had been in the original study remained. Comparison of these latter attrition figures with those from the E school revealed a non-significant chi-square. These analyses indicate that there were no gross differences in attrition rates between the E and C groups.

A further check was done on the differential effects of attrition on the 1961 group by comparing children who remained in the various groups to those who had departed. A total of 46 measures had been collected on these youngsters when they were 3rd graders. A series of *t* ratios were computed comparing the 3rd grade scores of children remaining and those departed on each of these measures by various group breakdowns as follows:

A. Total number of children present and total departed were compared with no significant *t* ratios resulting.

B. Remaining E school children were compared to remaining C school children with only one significant *t* ratio resulting (CMAS Anxiety score significantly lower for E school children).

C. Remaining E school children were compared to departed E school children with one significant *t* ratio resulting (CMAS Anxiety score significantly lower for remaining E school children).

D. Remaining C school children were compared to departed C school children with only one significant *t* ratio resulting (remaining C school children had significantly fewer referrals to the nurse).

Since in each case of 46 comparisons slightly more than two could be expected to result in significant differences at the 5% level by chance alone, it seems reasonable to conclude that any differences found in the 7th grade data are not due to the effects of attrition in the sample.

The 1962 Group

For the 1962 group, it was found that of the original 103 E school children only 52 remained and for the C school group 67 out of 136 were available for follow-up. Thus, 49.8% of the total sample had been lost.

The comparable figure for the 1961 group was 35.9%. Within this number there was no differential loss from the E or C groups. Analyses comparing subjects from various groups who remained to those who had departed revealed few differences, indicating that attrition did not result in systematic changes in total groups.

However, since the E and C school comparisons which were done in 1962 involved curtailed groups of 65 each (8) because the total groups differed significantly in IQ, relative attrition rates for those specific groups were also compared. A chi-square on these figures (4.44 for one degree of freedom) indicated that 43.1% loss in the E school group was significantly different from the 61.5% loss in the C school group.

This prompted concern that the evident differential attrition rates might result in systematic changes within groups on the criterion measures. To investigate this possibility the 3rd grade scores of the remaining members of the selected groups in the E and C schools were compared on the seven criterion measures which differentiated the selected groups initially. These data indicate that only two (grade point ratio and Classroom Teachers' Rating, Overall) of the seven measures which discriminated between the selected groups when they were 3rd graders similarly differentiated the portions of those groups which remained. Phrased otherwise, whereas the original 3rd grade groups were characterized by a pattern of differences on criterion measures favoring the former, the youngsters who remained available for study at the follow-up point would not have been as sharply differentiated as the parent samples at 3rd grade level. Therefore, it seems admissible that any subsequent failure to find differences on follow-up measures between these remaining portions of the selected E and C groups could well be a function of the differential effects of attrition in the samples.

When the remaining Red Tag (RT) and Non-Red Tag (NRT) subjects were compared on the criterion 3rd grade measures, of 14 out of 20 measures which had differentiated these two subgroups in the total 1962 E school sample, it was found that significant differences remained on nine. This suggests that attrition has had considerably less of an effect on the composition of the RT and NRT groups so that follow-up results can more confidently be attributed to the effects of the passage of time rather than to changes in the nature of the groups because of subject loss.

Instruments

Two principal types of instruments were used in the present investigation. These were for the most part identical with those used in earlier evaluations of the prevention project and were as follows: school record measures which were taken from the material available on all children in school files; and special test data which was collected primarily through group administration within the classroom.

School Record Measures

Referrals to the School Nurse. For each child in the school system an entry is made on the nurse's referral card whenever he reports to her office for examination during the school day. The number of referrals at each grade level (grades four through seven) as well as the cumulated number of referrals were used for a total of five scores.

Attendance. The record for each child's school absences, for each grade from the 4th through the 7th and the cumulated total was used making a total of five scores.

Achievement Test Scores. Routine administration within the Rochester School District of the SRA achievement tests in Reading, Arithmetic, Work Study and Language Arts at the 5th and 7th grade levels yielded a total of 10 separate scores at each of the two grade levels for a grand total of 20 scores.

IQ Test Data. The Otis IQ test was administered routinely to each child at the 3rd, 5th and 7th grade levels. This yielded three indices (a verbal, non-verbal and total IQ) for the 3rd grade and one score, total IQ, for the 5th and 7th grades respectively, making a total of five scores.

Report Card Data. Each child's average grade was determined, based on the letter grades earned in the following subjects: Reading, Language, Spelling, Arithmetic, Social Studies and Science. The formula used for arriving at such averages involved assigning a numerical value for the letter grades and averaging these numbers. The numerical values which were actually used were as follows: A=5, B=4, C=3, D=2, E=0; or A=5, S+=4, S=3.5, S-=3.0, T=2, U=0. Since averages for the four years from grades four through seven plus the cumulative average for all those years were used, a total of five scores resulted.

Achievement-Aptitude Discrepancy Index. This measure was determined by converting the grade point ratio and the total IQ score into standard scores ("z" scores). A discrepancy score (D-score) was computed between these two sets of scores (by subtracting IQ score from grade point score) for each child. This indicated the relationship between his grades (achievement) and his IQ (aptitude). Three types of such D-scores were actually computed. One compared the total grade point average to the 7th grade Otis IQ. The second related the 7th grade grade point average to the 7th grade Otis IQ. The 3rd index related the 7th grade grade point average to the 3rd grade IQ. A constant was added to all such scores to eliminate negative numbers. Low scores were used to represent under-achievement and high scores to represent over-achievement on each of these three measures.

Special Test Data

Children's Manifest Anxiety Scale (CMAS). This instrument, developed by Castaneda, McCandless, & Palermo (5), includes both a 42 item Anxiety (A) scale and an 11 item Lie (L) scale. Items on the A scale relate to symptoms or behavior in the child which would indicate manifest anxiety. Items on the L scale are designed to estimate the child's response tendency to see himself favorably. Thus there are two scores from this measure.

Bower's Thinking About Yourself (TAY). This test was developed by Bower (3) and consists of a series of descriptions of concrete attributes of young children. The subject indicates the extent to which he himself resembles the person being described (self concept) and the extent to which he would like to resemble this person (desired self). The degree of dissatisfaction with the self is indicated by the discrepancy between these two estimates. Thus a single score was used from this instrument.

Bower's "Class Play". This test, also developed by Bower (3), presumes for the subject a series of specific roles in a hypothetical play to be put on by the subject's class. Half of the roles are positive and half are negative. In Part I of the test each subject nominates peers who would best fill each role, thereby providing a type of sociometric score. In Part II the subject selects roles he would like to play and estimates which roles he might be chosen for by teacher and peers. Separate measures were derived from Part I (per cent negative selections by peers) and Part II (per cent positive or negative self choices) for a total of two scores.

Classroom Teachers' Behavior Rating Scale. This scale has been described in detail in earlier work of the authors (7). It consists of a list of 17 characteristics (e.g., dependency, immaturity, destructiveness, disruptiveness, tendency to worry, moodiness, etc.). For each child in her class the teacher is asked to check characteristics which apply. In addition to indicating that a characteristic does apply, the teacher also indicates the severity of the problem on a three-point scale; mild, moderate, or severe. Finally, on the rating form the teacher is asked to make an overall adjustment estimate for each child based on a five-point scale ranging from very well ajusted (1) to very poorly adjusted (5). Thus, each child was given an overall teacher's rating (CTR-Overall) and another score based on the sum of the individual characteristics checked by the teacher and weighted by the intensity with which the characteristic is displayed CTR-Sum). Since there were a total of 17 characteristics on the teacher's rating scale and one could receive an intensity score as high as three for each, the maximum possible score was 51.

Results

Results will be presented separately for the 1961 and 1962 groups. For the most part the measures used and types of analyses done were identical for the two groups. Where they differ it will be so indicated. In the case of both groups the basic analyses involved comparisons of RT and NRT children within the E school, comparisons of E and C school children, and intercorrelations of the longitudinal measures for the separate year groups. For the 1961 group there were a total of 50 measures on each child (the 50 which are described in the Instruments section).

RT and NRT Comparisons for the 1961 Group

Comparisons between RT and NRT children resulting in significant differences are reported in Table 1 (page 11). The maximum N for all such comparisons was RT=23 and NRT=43. Although Ns varied somewhat due to occasional missing scores, the maximal Ns were also the modal ones.

Table 1 indicates that out of the 49 comparisons made between groups, 10 differences are significant at beyond the .05 level. Since one would expect no more than three such differences out of 49 by chance alone, this number is considerably greater than would be likely to occur by chance. It is also very germane that in every case where significant differences occur between groups the RT children are found to be more negative. They are more negatively regarded by teachers and peers, are achieving less well, as measured by school grades and this is confirmed by their lower scores on several SRA indices.

E and C School Comparisons for the 1961 Group

For these comparisons the maximum N for each group, and also the modal N, was E=66, C=116. Occasional missing observations resulted in some variation on these figures. The significant differences found in the E and C group comparisons are reported in Table 2 (page 12).

Of the 49 comparisons, 17 reached significance at over the .05 level. This is considerably more than the three which might be expected by chance. The pattern of these differences is not as clear cut as it is in the RT-NRT comparisons. In general, E school children were found to have lower grades, to be under-achieving more, and to be absent more frequently than C schoolers. On the other hand, E school children were less anxious at the 7th grade level and were scoring better on some 5th and 7th grade SRA achievement tests than C school children.

Table 1

Significant t Tests Resulting From Comparing 7th Grade Data of Red Tag and Non-Red Tag Children in the 1961 Group

Variable	$\bar{X}$ RT	$\bar{X}$ NRT	t
Class Play I	65.05	44.73	2.35*
CTR - Sum	13.95	5.61	3.41**
CTR - Overall	3.48	2.51	3.20**
Nurse Referrals, 62-63	2.18	0.92	2.26*
Grades, Fifth Grade	365.00	409.75	2.32*
Grades, Sixth Grade	335.00	387.79	2.17*
SRA, 7th, Lang. Arts	30.18	34.90	2.54*
SRA, 7th, Arith., Reasoning	18.33	22.19	2.19*
SRA, 7th, Arith., Concepts	12.42	15.34	2.24*
SRA, 5th, Arith., Reasoning	23.27	27.87	2.11*

* P = .05
** P = .01

Table 2

Significant t Tests Resulting from Comparisons of E and C Subjects in the 1961 Group

Variable	$\bar{X}$ E	$\bar{X}$ C	t
Grade	6.67	6.91	4.02**
CMAS Anxiety, 7th Grade	13.51	15.82	2.17*
Attendance, 61-62	10.53	7.84	2.23*
Attendance, 64-65	9.95	5.83	2.50*
Attendance, Total	39.32	28.43	2.53*
Nurse Ref., 4th Grade	1.56	0.94	2.25*
Nurse Ref., 7th Grade	.58	1.38	2.92**
Grades, 5th Grade	395.52	421.10	2.08*
Grades, 6th Grade	370.92	430.70	3.82**
Grades, Total	382.64	411.46	2.26*
Ach.-Apt. Disc. - Total Grd. Pt. - 7th Grade Otis	395.48	428.09	3.02**
Ach.-Apt. Disc. - 7th Grade-7th Grade Otis	361.05	445.87	5.91**
Ach.-Apt. Disc. - 7th Grade-3rd Grade Otis	369.16	429.31	3.63**
SRA, 7th Grade, Arith., Reasoning	21.14	18.02	2.98**
SRA, 7th Grade, Arith., Concepts	14.55	12.97	2.25*
SRA, 5th Grade, Work Study, Charts	15.70	13.86	2.67**
SRA, 5th Grade, Arith., Concepts	12.98	11.72	2.72**

* P = .05
** P = .01

Longitudinal Analyses of 1961 Group and Intercorrelation Between Measures

The intercorrelations which were done involved 15 3rd grade measures as follows:

Nurse Referrals
Cumulative Nurse Referrals (1st to 3rd grade)
Attendance (Days Absent)
Grade Point Average (GPA)
Otis, Non-verbal IQ
Otis, Verbal IQ
Otis, Total IQ
SRA, Arithmetic, Computation
SRA, Arithmetic, Reasoning
Achievement - Aptitude D Score (3rd grade GPA - Total Otis IQ)
Classroom Teachers' Rating I (Sum)
Classroom Teachers' Rating II (Overall)
CMAS, Lie Scale (CMAS, L)
CMAS, Anxiety Scale (CMAS,A)
RT or NRT designation

The following 29 post-3rd grade measures also entered into the correlation matrix:

Sex
Grade Level Achieved at the time of evaluation
CMAS, Lie Scale, 7th grade (CMAS, L, 7)
CMAS, Anxiety Scale, 7th grade (CMAS, A, 7)
Thinking About Yourself, 7th grade (TAY, 7)
Class Play I, 7th grade (Class Play I, 7)
Class Play II, 7th grade (Class Play II, 7)
Attendance, 4th grade
Attendance, 5th grade
Attendance,6th grade
Attendance, 7th grade
Attendance, Total for the four years
Nurse Referrals, 4th grade
Nurse Referrals, 5th grade
Nurse Referrals, 6th grade
Nurse Referrals, 7th grade
Nurse Referrals, Total for the four years
GPA, 4th grade
GPA, 5th grade
GPA, 6th grade
GPA, 7th grade
GPA, Total for the four years
Otis Total IQ, 7th grade (Otis, 7)
Otis Total IQ, 5th grade (Otis, 5)

Achievement - Aptitude D Score I (Total GPA - Otis, 7)
Achievement - Aptitude D Score II (GPA, 7 - Otis, 7)
Achievement - Aptitude D Score III (GPA, 7 - Otis, 3)
Classroom Teachers' Rating I, 7th grade (CTR, Sum, 7)
Classroom Teachers' Rating II, 7th grade (CTR, Overall, 7)

These variables made up a 44 x 44 correlation matrix in which 15 x 29 (435) related 3rd grade measures to post-3rd grade measures. For most analyses which utilized all available subjects in E and C schools who had been in the experiment as 3rd graders the total N was 182. Because all observations were not always available for all subjects, some of the correlations involved Ns that were slightly lower. With Ns of such magnitude, a correlation of .15 is significant at beyond the 5% level. This correlation matrix as well as the one involving the data of the 1962 group was generated on an IBM 7074 computer using the MISOBS program.

Relationships Between 3rd Grade and post-3rd Grade Measures

Of the total of 435 correlations done between the 3rd grade and post-3rd grade measures, 183 proved to be significant. Table 3 (page 15) lists all significant correlations. The 3rd grade variable which relates to the most measures taken later is grade point average. It correlated significantly with 19 of the 29 variables including a wide spectrum including some relating to adjustment, achievement, intelligence and even referrals to the school nurse. The 3rd grade variables relating to the fewest post-3rd grade measures were the CMAS, L and A scales which had three and one significant correlations respectively. Both 3rd grade teachers' ratings correlated significantly with a number of achievement measures in later years and with the 7th grade teachers' rating as well as the child's peer and self ratings as indicated in the Class Play scores. The Otis IQ measures and the two SRA scores also correlated significantly with later achievement as well as classroom teacher and Class Play adjustment measures.

Intercorrelations Among Adjustment Measures

Table 4 (page 16) was prepared to depict the pattern of interrelationships among the various adjustment measures which have been used. The results in this table indicate that at the 7th grade level the peer and self ratings of the Class Play and the classroom teachers' ratings tend to intercorrelate and to be related to the RT or NRT designation arrived at in the 3rd grade. The CMAS and TAY measures, on the other hand, correlate somewhat with each other but not with the other adjustment measures.

Table 3

Significant Correlations Between Third Grade and Post Third Grade Measures (1961 Group)

Post 3rd Grade Measures	Third Grade Measures														
	Nurse Referrals	Cum. Nurse Ref.	Att.	GPA	Otis Non Verb.	Otis Verb.	Otis Total	SRA Arith. Comp.	SRA Arith. Reas.	Ach.-Apt. D Score	CTR Sum	CTR Overall	CMAS L	CMAS A	RT=1 NRT=2
(1=M) Sex (2=F)		.16	.26	.24				.25	.16			-.22		.17	-.22
Grade Level Achieved	-.24	-.24		.47		.25	.21	.31	.34	.25		-.28			-.26
CMAS, L (7th)				-.20	-.17	-.21	-.20	-.32	-.35		.16		.25		
CMAS, A (7th)					.15									.37	
TAY (7th)										-.15				.21	
CP I (7th	.17			-.42		-.16	-.15	-.17	-.18	-.25	.29	.28			.25
CP II (7th)				-.26	-.16	-.18	-.19	-.19	-.21		.20	.21			
Att., 4th Grade			.44					.24							
Att., 5th Grade			.33												
Att., 6th Grade	.17	.20	.29												
Att., 7th Grade			.41	-.18											.23
Att., Total			.46												.16
Nurse Ref., 4th		.21			.16										
Nurse Ref., 5th	.34	.40		-.17								.16			.31
Nurse Ref., 6th	.38	.32		-.23				-.16	-.18						.24
Nurse Ref., 7th															.21
Nurse Ref., Total	.25	.38		-.17											.30
GPA, 4th				.61	.24	.35	.32	.56	.59	.29	-.26	-.36			
GPA, 5th		-.23		.58	.26	.48	.43	.43	.49			-.36			-.18
GPA, 6th	-.18	-.19		.62	.39	.49	.49	.49	.57		-.20	-.38			-.25
GPA, 7th				.52	.40	.43	.46	.46	.49		-.26	-.30			-.21
GPA, Total				.69	.39	.52	.51	.58	.63	.20	-.28	-.42			-.19
Otis IQ, 7th				.51	.57	.66	.69	.63	.69	.24	-.21	-.27			
Otis IQ, 5th				.48	.58	.68	.71	.60	.64	.28	-.18	-.32			
Ach.-Apt. I				.17	-.26	-.24	-.28		-.17	.48		-.16			-.16
Ach.-Apt. II										.20	-.15				-.18
Ach.-Apt. III		-.16			-.42	-.42	-.49			.53					-.21
CTR Sum, 7th	.32		-.16	-.41	-.16	-.21	-.20	-.24	-.24	-.22	.33	.30			.39
CTR Overall, 7th	.16			-.49	-.27	-.33	-.33	-.22	-.26	-.17	.30	.37			.34

Table 4

Intercorrelations Among Adjustment Measures*
(1961 Group)

	CMAS A-7	CMAS L-7	Class Play I-7	Class Play II-7	TAY 7	CTR I-7	CTR II-7	CTR I-3	CTR II-3	CMAS L-3	CMAS A-3	RT-NRT
CMAS A-7	----	-.07	.00	.10	.35	-.08	.00	.02	-.05	-.09	.37	-.11
CMAS L-7		----	-.03	-.11	-.20	.10	.11	.16	.12	.25	.00	.07
Class Play I-7			----	.50	.19	.52	.64	.29	.28	-.13	.08	.25
Class Play II-7				----	.25	.41	.47	.20	.21	-.13	-.04	.06
TAY - 7					----	-.04	.05	.00	.00	-.09	.20	-.04
CTR Sum-7						----	.72	.33	.30	-.12	-.02	.39
CTR Overall-7							----	.30	.37	-.06	-.05	.34
CTR Sum-3								----	.68	-.03	.09	.19
CTR Overall-3									----	-.02	.08	.25
CMAS L-3										----	-.18	.01
CMAS A-3											----	.12
RT-NRT												----

*.15 is significant at $P < .05$

RT-NRT Comparisons for 1962 Group

Significant differences resulting from these RT-NRT comparisons are reported in Table 5 (page 18). Most of these analyses involve 16 RT subjects and 36 NRTs. Some involve slightly fewer due to missing data but these are the modal Ns.

In these analyses comparisons were made on a total of 42 variables. These were the same variables that were involved in the analyses of the 1961 group except that in this case five fewer SRA 5th grade scores were available, and the 3rd grade Otis, verbal and non-verbal scores were not used. Table 5 indicates that 13 of the 42 *t* tests that were done indicated significant differences between RT and NRT groups, again a much larger number than would be expected by chance alone. Directionally, these differences are quite consistent. In all comparisons the RT group does less well than the NRT group. They are rated as more poorly adjusted by teachers and peers and their grades over the years reflect poorer achievement as do the differences found on three of the SRA tests. Also they tend to be referred more frequently to the nurse.

E and C School Comparisons for the 1962 Group

The analyses comparing E and C school children involved only the children who remained in the school from the original selected groups. The N for the E school was therefore only 37 and for the C schools 25. The comparisons of these groups involved the same 42 variables on which RT - NRT comparisons had been made.

Only three of the 42 *t* ratios comparing 7th grade data for E and C subjects reach significance at the 5% level. By chance alone approximately two significant *t* ratios could have been expected so that these differences are not much in excess of chance expectation. All three differences involve frequency of referral to the school nurse and in each case the E school children have the higher number of referrals. Unfortunately, however, nurses' records in the C schools were not kept with detailed accuracy as was done in the E schools and it is entirely conceivable that the seeming differences on these measures reflect little more than differences in efficiency of bookkeeping.

Available data, relevant to the E vs. C follow-up comparisons, were, as suggested earlier, frustrating. The essential difficulty was that the *S*s who remained at the follow-up point were no longer comparable to the original groups. Whereas at the 3rd grade level, there were, on the 18 criterion comparisons, seven significant *t*s, each favoring the E group (i.e., positive effects of the prevention program), analysis of the 3rd grade data for the E vs. C remainers indicated only two such differences. In a very real sense the purpose of the follow-up comparison was defeated before it started, because the original significant differences were no longer represented in the data. The 7th grade results between E and C groups cited in the above paragraph are largely non-discriminating; however, the nature of the sample attrition that had taken place virtually guaranteed such an outcome.

Table 5

Significant t Tests Resulting from
Comparing 7th Grade Data of
Red Tag and Non-Red Tag Children in the 1962 Group

Variable	$\bar{X}$ RT	$\bar{X}$ NRT	t
Class Play I	58.07	34.59	2.40
Class Play II B	16.31	6.92	3.21
CTR - Overall	3.31	2.39	2.76
Nurse Referrals, 7th	1.81	0.31	3.58
Nurse Referrals, Total	8.13	3.71	2.78
Grades, Fourth Grade	-0.72	0.09	2.53
Grades, Fifth Grade	-0.78	0.13	3.49
Grades, Sixth Grade	-0.94	0.02	2.91
Grades, Seventh Grade	-0.90	-0.13	2.96
Grades, Total	-0.88	0.10	3.17
SRA, 7th, Lang. Arts, Gram. Usage	33.00	36.82	2.02
SRA, 7th, Lang. Arts, Spelling	13.93	18.15	2.32
SRA, 5th, Arith., Conceptual	9.92	11.97	2.19

In effect, neighborhood transition in the E school was such that the relatively "healthier" children had moved out, whereas something of the converse had taken place in the control schools.

Considerable effort was invested in trying to grapple with this dilemma, the essential goal being that of restoring within the 7th grade sample, the conditions that had prevailed at the time of the E vs. C 3rd grade analyses. The justification behind such an approach was that we were concerned with the stability of a given set of criterion differentiators (reflecting effects of a prevention program over time) rather than information about differential "moving out" patterns in two neighborhoods. The solution, however, was complicated by two factors. The first of these was the general nature of sample attrition -- there were only 62 remainers from an original sample of 130. The second problem was that the attrition rate for the two sub-samples was not the same, in that there were 37 of 65 remainers in the E school and 25 of 65 in the C school ($\chi^2 = 4.44$, $p = 05$). In other words there were virtually no degrees of freedom available in an effort to reconstitute the 3rd grade conditions -- particularly so in the C group where such degrees of freedom were needed.

Nevertheless, a concerted attempt was made to restore the initial 3rd grade conditions within a maximal sub-set of E and C remainers. This effort was complicated by a spate of methodological considerations. For example, the very decision of what was meant by "reconstituting 3rd grade conditions" was a value judgment which could well have influenced the outcome of the procedure. Differential results might be expected on the basis of matching by original means, ts, or ps. A further problem was how, technically, this might be done. And finally there was the question of how precise the matching should be. Relatively precise matching would entail heavy loss in sample size whereas more subjects could be retained at cost of precision of matching.

Eventually, a computer program was developed and implemented based on the general principle of "reduction of discrepancy" from the conditions reported in the third grade analyses. A Σ^2 function was generated minimizing simultaneously the t, (3rd grade E vs. C) minus t_2 (total remainers at 7th grade E vs. C) function for 18 variables and 62 Ss:[1]

$$\left[\text{Minimum}\Sigma^2 = \underbrace{t_1\ (3rd)}_{\text{fixed}} - \underbrace{t_2\ (7th)^2}_{\text{variable}}\right]$$

Fundamentally, through a continuous iterative process the machine eliminated, one by one, that single subject, whether E or C, who, pattern-wise, was adding the most total variance to the criterion function, thereby successively minimizing the Σ^2 function. Since this is a theoretically continuous process, there remained the arbitrary decision of stopping at an appropriate point in subject reduction

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[1] The authors are deeply indebted to Dr. Michael Davidson, whose creativity and knowledge of computer technology made possible the generation of this type of solution.

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where conditions of approximation of original conditions and remaining sample size are optimally balanced.

A relatively precise matching of t_1 and t_2 (3rd grade and remaining 7th grade) was attained on the basis of 24 Es and 16 Cs. The total χ^2 function for this sub-set was 2.527, which is less than 10% of the comparable χ^2 function (27.933) based on all 62 remainers (37 E and 25 C). Even with this sharpely attenuated sample only 4 of the 7 originally significant _t_s remained significant based on the third grade data. However since the others approached significance it was considered that this restricted sub-sampel, though dilute, approximated the conditions of the original E vs. C comparisons. The next step was to compare these 24 Es to the 16 Cs for each of the 18 criterion measures used in the 3rd grade analyses, this time however using the 7th grade data as the dependent measures. In this analysis significant differences were found on three comparisons, each favoring the E school. Thus, on the CMAS L scale, $\bar{X}_E = 1.67$, $\bar{X}_C = 3.50$, $t = 2.74$, on the overall teachers behavior rating scale $\bar{X}_E = 1.25$, $\bar{X}_C = 2.13$, $t = 2.57$ and on the 7th grade SRA Arithmetic Reasoning, $\bar{X}_E = 20.67$, $\bar{X}_C = 16.31$, $t = 2.05$. For one other measure, per cent negative choices on Part I on the Class Play measure, the E group approaches a significantly better score than the C group ($\bar{X}_E = 37.04$, $\bar{X}_C = 53.25$, $t = 1.63$).

In other words, when restoration of the E and C remainer groups is such that ixisting conditions at the time of the criterion E vs. C 3rd grade comparisons are approximated, then there is some suggestion on several key variables of enduring positive effects of the prevention program. (i.e., better adjustment as seen by the teacher, in E children, lesser tendency for E children to lie, higher SRA Arithmetic Reasoning scores and a trend suggesting that E children have more sociometric acceptability by their peers). The authors, however, are reluctant to place strong emphasis on these findings because it is clear that in the very process of selection of remainer _S_s for this type of analysis, an inherent bias intrudes favoring retention of "better" children in the E group and "poorer" ones in the C group. Thus, while the original 3rd grade _t_ conditions are approximated, the sub-sets of _S_s retained for the analyses can no longer be thought of as random samples from the parent groups.[2]

The nub of the difficulty seems to be that, given the events of nature (i.e. sample attrition), there is no good solution to the data analysis. To accept the remainers "as they fall" is to work with a group which allows no clean test of the original hypothesis on enduringness of the E vs. C 3rd grade differences. To utilize the sub-sets approximating initial E vs. C _t_ ratios, yields results favoring the continuity of program effects at 7th grade level, but with _S_s who, in a different, and also biased way, depart from the given 3rd grade parent samples. The two basic types of analyses reported anchor the extremes of available approaches. In terms of basic generalizations to be derived, it is perhaps fair to say that the uncontrollable effects of selective sample attrition render strong generalizations on this issue indefensible.

[2] Still another approach was pursued in an effort to test E vs. C differences at 7th grade level on the criterion measures, within a sub-set of the remainer group which more closely approximated conditions at the time of the 3rd grade E vs. C analysis. The same general technique as described above was used to identify (this time, somewhat larger) sub-sets of remainers, (31 Es and 20 Cs). Based on 3rd grade data a discriminant function was computed with empirical weightings for the 18 criterion variables. This yielded a single discriminant function score for each S. A t ratio comparing discriminant function scores for 3rd grade data demonstrated significantly more favorable scores for the 31 E group Ss, in comparison to the 20 Cs, an outcome which was directionally consonant with our original findings.

Having identified this discriminant function the next step was to determine new discriminant function scores for the same sample of 31 E and 20 C subjects now based on 7th grade data. As matters turned out, the two variables which were by far most heavily weighted in this analysis were low overall teachers' ratings and high achievement aptitude D-scores, each of which represents a favorable state of affairs. The nature of the 7th grade data, however, was such that the C group was directionally superior on Ach.-Apt. D-score, whereas the E group was directionally better adjusted on the teachers behavior rating. Otherwise stated, the two variables which accounted for most of the variance of the total discriminant function score were opposite in direction and nearly equal in pull. Accordingly, the discriminant score which successfully differentiated the remainer sub-sets at 3rd grade level, failed to do so with the new 7th grade data. This analysis and the derivative findings would argue at least moderately, against the notion of enduring E vs. C differences.

Longitudinal Analyses of the 1962 Group and Interrelations between Measures

Intercorrelations involved the following 19 3rd grade measures:

Nurse Referrals
Attendance (Days Absent)
Grade Point Average (GPA)
Otis, Non-verbal IQ
Otis, Verbal IQ
Otis, Total IQ
SRA, Arithmetic, Computation
SRA, Arithmetic, Reasoning
SRA, Arithmetic, Conceptual
SRA, Reading, Comprehension
SRA, Reading, Vocabulary
Achievement - Aptitude D Score (3rd Grade GPA - Total Otis IQ)
Classroom Teachers' Rating I (CTR, Sum)
Classroom Teachers' Rating II (CTR, Overall)
CMAS, Lie Scale (CMAS, L, 3)
CMAS, Anxiety Scale (CMAS, A, 3)
Thinking About Yourself (TAY)
Class Play I (CP, I, 3)
Class Play II (CP, II, 3)

The following 27 post-3rd grade measures also entered into the correlation matrix:

CMAS, Lie Scale, 7th Grade (CMAS, L, 7)
CMAS, Anxiety Scale, 7th Grade (CMAS, A, 7)
Thinking About Yourself, 7th Grade (TAY, 7)
Class Play I, 7th Grade (Class Play I, 7)
Class Play II, 7th Grade (Class Play II, 7)
Attendance, 4th Grade
Attendance, 5th Grade
Attendance, 6th Grade
Attendance, 7th Grade
Attendance, Total for the four grades
Nurse Referrals, 4th Grade
Nurse Referrals, 5th Grade
Nurse Referrals, 6th Grade
Nurse Referrals, 7th Grade
Nurse Referrals, Total for the four grades
GPA, 4th Grade
GPA, 5th Grade
GPA, 6th Grade
GPA, 7th Grade
GPA, Total for the four grades
Otis Total IQ, 7th Grade (Otis, 7)
Otis Total IQ, 5th Grade (Otis, 5)
Achievement - Aptitude D Score I (Total GPA - Otis, 7)

Achievement - Aptitude D Score II (GPA, 7th - Otis, 7)
Achievement - Aptitude D Score III (GPA, 7th - Otis, 3)
Classroom Teachers' Rating I (CTR, Sum, 7)
Classroom Teachers' Rating II (CTR, Overall, 7)

These variables made up a 46 x 46 correlation matrix of which 19 x 27 (513) consisted of correlations between 3rd grade and post-3rd grade measures. These analyses involved a maximum of 119 subjects. The Ns for individual correlations vary from this maximal figure to a minimum of 73. For the sake of convenience a correlation coefficient of .20 will be regarded as significant at the 5% level for this entire matrix although in a few individual cases a slightly higher or lower figure might be more accurate.

Relationships between 3rd Grade and Post-3rd Grade Measures

Of the 513 correlations involving these variables, 218 were significant, far in excess of the 25 or 26 which might be expected by chance alone. Table 6 (page 23) lists all such significant correlations. As in the case of the 1961 data, the 3rd grade variable correlating most frequently with post-3rd grade measures is grade point average, with 18 significant correlations.

Again, the pattern of significant interrelationships for this variable includes adjustment as well as achievement indices. The 3rd grade variables correlating with the fewest post-3rd grade measures were the TAY (only three significant correlations) and the CMAS, Anxiety Scale (only four significant correlations). Adjustment measures like both Classroom Teachers' Ratings and Class Play I (peer ratings) related significantly to many (16 each) post-3rd grade measures including other adjustment and achievement measures.

Intercorrelations Among Adjustment Measures

Table 7 (page 24) lists the intercorrelations among the adjustment measures used with the 1962 group. As in the case of the 1961 group, the Classroom Teachers' Ratings and the Class Play, particularly Part I, tend to correlate highly with each other whereas the TAY and CMAS fail to correlate very highly with these instruments but do relate better to each other. In the present analyses both 3rd grade and 7th grade Class Play (two scores) and TAY (one score) scores are available. Of the three sets of scores the correlation for Class Play I at the two grade levels is the highest (r=.49).

Discussion

Comparisons of RT and NRT groups for the two years which have been studied offers conclusive support for Hypothesis B which predicted that children identified very early in their school career as having at least moderate emotional disorders or the potential for them will display poorer performance in a variety of spheres of functioning if left un-

Table 6

Significant Correlations Between Third Grade and Post Third Grade Measures (1962 Group)

Post 3rd Grade Measures	Third Grade Measures																		
	Nurse Referrals	Att.	GPA	Otis Non Verb	Otis Verb.	Otis Total	SRA Arith. Comp.	SRA Arith. Reas.	SRA Arith. Concepts	SRA Reading Comp.	SRA Reading Vocab.	Ach.- Apt. D Score	CTR Sum	CTR Overall	CMAS L	CMAS A	CP I	CP II	TAY
CMAS, L-7th	.24		-.34		-.31	-.22	-.25			-.35	-.27				.34	.30			
CMAS, A-7th																			.32
TAY - 7th																			
CP I - 7th			-.41	-.32	-.28	-.32				-.22	-.23		.39	.35			.49	.20	
CP II - 7th			-.22	-.30		-.27	-.21				-.24		.25			.20	.24	.25	
Att., 4th Grade		.36									.21							-.21	
Att., 5th Grade		.56													.23				
Att., 6th Grade	.25	.28					-.25								.21				
Att., 7th Grade		.26	.21						-.20	.21				-.22	.21				
Att., Total		.51							-.20						.25				
Nurse Ref., 4th	.45		-.24							-.28	-.25	-.25	-.25	.24			.21		
Nurse Ref., 5th	.48						-.22			-.24		-.21	.34	.20			.27		
Nurse Ref., 6th	.44		-.20							-.24						.30			.24
Nurse Ref., 7th	.22		-.21									-.22		.24					
Nurse Ref., Total	.55		-.27							-.29	-.27	-.28	.41	.28		.25	.28		
GPA, 4th		.23	.71	.46	.47	.50	.54	.59		.60	.65	.34	-.48	-.48			-.36	-.33	
GPA, 5th	-.21		.74	.49	.55	.55	.53	.50		.56	.60	.33	-.47	-.47	-.22		-.45	-.31	
GPA, 6th	-.21		.57	.55	.54	.57	.47	.46		.40	.43		-.48	-.39			-.42	-.28	
GPA, 7th			.59	.61	.60	.66	.47	.54		.47	.46		-.47	-.42	-.25		-.37	-.30	
GPA, Total		.22	.70	.58	.66	.67	.49	.54		.50	.55		-.51	-.47	-.21		-.38	-.26	
Otis IQ - 7th			.69	.52	.64	.62	.52	.56		.62	.68		-.34	-.36	-.27		-.24	-.26	
Otis IQ - 5th			.58	.43	.58	.53	.41	.35	.20	.53	.58		-.35	-.28	-.21		-.23	-.23	
Ach.-Apt. I									-.24				-.23				-.25		
Ach.-Apt. II									-.26	-.22	-.31								
Ach.-Apt. III			.28	-.32	-.30	-.39		.22	-.23			.67	-.21	-.27			-.24		.22
CTR, Sum - 7th			-.33	-.34		-.25	-.24	-.27		-.32	-.26	-.25	.41	.35			.44	.25	
CTR, Overall - 7th			-.45	-.32	-.25	-.29	-.22	-.21		-.40	-.28	-.21	.32	.37	.20		.38	.24	

Table 7

Intercorrelations Among
Adjustment Measures
(1962 Group)

	CMAS A-7	CMAS L-7	Class Play I-7	Class Play II-7	TAY 7	CTR Sum 7	CTR Overall 7	CTR Sum 3	CTR Overall 3	Class Play I-3	Class Play II-3	TAY 3	CMAS L-3	CMAS A-3
CMAS, A - 7	----	-.13	.01	.27	.22	-.02	.02	.01	.03	-.03	-.06	.05	.09	.30
CMAS, L - 7		----	.15	-.06	-.11	.08	.19	.10	.16	.05	.15	-.17	.34	.07
Class Play I - 7			----	.44	.24	.35	.60	.39	.36	.49	.20	.05	.18	.10
Class Play II - 7				----	.32	.23	.34	.25	.17	.24	.25	.15	.05	.20
TAY - 7					----	.10	.12	.10	-.03	.12	.15	.32	-.04	.19
CTR Sum - 7						----	.52	.41	.35	.44	.25	.10	.02	.09
CTR Overall - 7							----	.32	.37	-.38	-.24	.14	-.20	-.05
CTR Sum - 3								----	.67	.52	.35	.16	-.04	.15
CTR Overall - 3									----	.50	.35	.02	.03	.07
Class Play I - 3										----	.46	.16	-.09	.08
Class Play II - 3											----	.13	-.13	.13
TAY - 3												----	-.27	.38
CMAS L - 3													----	-.23
CMAS A - 3														----

* .20 is significant at $p < .05$

treated over time. Results with the two groups which have been followed up reveal that the RT groups, which were constituted while the children were 1st graders, are earning poorer grades, doing less well on achievement tests, and are judged by classroom teachers and peers to be more poorly adjusted as 7th graders than are their NRT peers.

Interesting comparisons may be made between the RT-NRT differences of the 1961 and 1962 groups as 7th graders and the differences that were found between these groups when they were in the 3rd grade. For the 1961 group Cowen, et al. (7) reported that significant differences were found between RT and NRT children on grade point ratio, SRA, Reading, Comprehension, and the two ratings made by the classroom teachers. In all cases RT children scored more negatively than the NRT children. As 7th graders the RT children of the 1961 group were again rated significantly more negatively by classroom teachers, had earned significantly poorer grades as 5th and 6th graders and were doing less well on several 7th grade SRA achievement tests than NRT children. In addition, peer ratings which were not available when the 1961 group was in the 3rd grade also found RT children to be regarded more negatively than their NRT fellows. For the 1962 group Cowen, et al. (8) reported that RT children had significantly more referrals to the nurse, lower grades, lower scores on several achievement tests and were rated as significantly more maladjusted by teachers, peers and themselves than the NRT group. As 7th graders the RT children are again found to have had significantly poorer grades and lower achievement test scores as well as being referred more to the nurse and being rated more negatively by teachers and peers.

Such data are quite timely in view of the current casting about within the helping professions for more effective approaches to mental health problems. The demonstrated stability of deficit in the young school child with early detected disorder points to the importance of the need to explore interventive-ameliorative approaches as early as possible in the child's school career. This question has generated some controversy in the past and there have been those who have espoused the notion that the problems of children are often ephemeral so that dealing with them does little to circumvent psychological difficulties in later life (2). Some data collected recently (16) would seem to support this contention and lend credence to the notion that children outgrew their problems and that those which develop among adults are of an entirely different order.

The data of this study contradict the view which would regard early identification and prevention of emotional disorders among children as a useless exercise. It is difficult to regard a process detectable at age six which is related to relatively ineffective functioning at age 12 or 13 as ephemeral. The importance of such a process is furthermore underscored by the fact that it involves functioning in an area like school progress and adjustment which can often set the tone for one's entire future life. These results bolster the earlier findings of Cowen, et al. (7, 8) and Zax, Cowen, Izzo, & Trost (22).

The RT-NRT data are furthermore in keeping with the findings of a number of recent studies directed at the question of whether or not the problems of children are self-healing. Stennett (20) found that an emotionally handicapped group of children, as identified by a modified Bower screening technique, fell increasingly further behind their peers with the passage of time. O'Neal & Robbins (17, 18) followed up, after an interval of 30 years, a large group of people who had been seen (at an average age of 12) for evaluation in connection with some type of "problem behavior". They found that the incidence of pathology in this group of adults, in terms of sociopathy, psychosis and alcoholism, was significantly higher than in a matched control group. Bower, Shellhamer & Dailey (4) found that a group of schizophrenics displayed significantly poorer high school mental health and school record ratings than did a matched group of non-schizophrenic controls. Westman, Rice & Germann (21) found a correlation of .88 between maladjustment ratings made of children early in their school careers and their subsequent utilization of mental health services over an 18-year period.

Thus present findings align well with many other recent studies to suggest the worthwhileness of attempting to identify, as early as possible, those children who seem vulnerable to emotional disorder. In the present context it has been possible to do this among first graders through the use of the clinical judgments of the school social worker and the school psychologist. In the section on conclusions, the implication of these findings for future work will be highlighted.

Findings with respect to Hypothesis A which predicted better adjustment, performance and achievement for E school youngsters as compared with C school children are equivocal. Their inconclusiveness stems from more than one factor but certainly a major problem derives from the attrition in the 1962 group which resulted in E and C groups among 7th graders which were not truly representative of the E and C groups of 3rd graders that had been carefully matched earlier. As a result the 3rd grade scores of these remaining groups fail to differentiate these groups on five of the seven measures on which they differed originally. Current findings with what remains of the 1962 sample indicates only that the E school children are significantly higher than C schoolers on three of the Nurse Referral measures which were used, such differences may conceivably reflect differential bookkeeping on this measure, and a failure to record nurses data meticulously in the C schools. This is a reversal of what was found in the E and C comparisons of the 1962 groups as 3rd graders (8). At that time it was also found that E school children were significantly different from C schoolers in having higher average grade point ratios, higher scores on SRA, Comprehension, less discrepancy between achievement and aptitude, teachers' ratings reflecting better overall adjustment and lower CMAS Anxiety and Lie scale scores. The reason for the current failure to confirm these findings may lie in the fact that such differences between the groups have for some reason been eliminated over the years. More plausible, however, is the possibility that attrition has effected the two groups differentially so that a larger percentage of children benefitting most

from the E school program have moved from the neighborhood. The comparison of the 3rd grade scores of the remainder of the E and C groups supports this liklihood.

Concern about selective attrition led to a computer generated program to identify sub-samples of the E and C groups which more closely approximated the conditions of the 3rd grade criterion analyses. This resulted in an additional reduction of 35% in an already limited sample of 7th grade remainers. The criterion analysis based on the 7th grade data for these groups indicated a pattern of difference favoring the E group, with significant group differences on several key criterion measures. This latter analysis, however, is also a biased one in that, although it succeeds in reconstructing original 3rd grade differences, it rests on the selection of "better E school and "poorer" C school remainers.

Comparisons of E and C school children in the 1961 group, the overall makeup of which seems to have been less affected by attrition, fail to present a clear-cut picture. When they were in the 3rd grade the E school children had significantly lower CMAS Anxiety scale scores (7) and that finding is repeated when these groups are compared as 7th graders. Otherwise 3rd grade comparisons of these groups revealed only one other significant difference and that found the E school group with a higher mean score (reflecting poorer adjustment) on the classroom teacher's rating of overall adjustment.

As 7th graders, the differences between E and C school children of the 1961 group reflect many inconsistencies with respect to achievement indices. For example, although E schoolers have earned significantly lower grades in the 5th and 6th grades as well as on the total grade point measure, and have failed to advance as a group through as many grades as C schoolers,both 5th and 7th grade SRA achievement test scores involving arithmetic and work study skills find them scoring significantly higher. This inconsistency may reflect a tendency on the part of teachers in the E school to grade more stringently than those in the C schools. Such a contingency would also account for the fact that E schoolers have average achievement-aptitude discrepancy scores indicating significantly greater underachievement than C schoolers.

The follow-up findings with the 1961 group do not find the E schoolers being rated as behaving in more maladjusted ways in the classroom than C schoolers as was true when they were 3rd graders (7). The significant differences found on the CMAS Anxiety score does indicate that E children were less anxious than C children, as was true when they were 3rd graders. Attendance records, however, find that E school children were absent significantly more as 4th graders, as 7th graders and overall than C children. Again, one type of adjustment measure seems to favor one group while another favors the other group. The analysis of Nurse Referrals also reflects this equivocality. As 4th graders the E schoolers went to the nurse more times while as 7th graders it was the C schoolers who did so.

The longitudinal analyses provide another type of data which reflects the importance of early school adjustment for later school functioning.

The large number of significant and fairly substantial correlations between a child's grade point average and the ratings peers and teachers make of his behavior while he is a 3rd grader, and similar measures taken while he is a 7th grader is one good example of this. It suggests that the child who gets off to a poor start in the first few years of school is quite likely to be evaluated poorly during his later school years despite the fact that he is being evaluated by different people, surrounded by somewhat different peers and taught by different teachers. It is conceivable that this is related to the fact that attitudes toward a given child are passed on from year to year to new peers and to new teachers. It is at least equally likely, however, that such stability stems from a behavioral and attitudinal pattern in the child which becomes fixed in the early school years. This argues for devoting close attention to the primary grader and perhaps even the pre-schooler and the importance of bending every effort to make it possible for him to begin functioning at his optimal level as early as possible.

The fact that the 3rd grade Otis IQ scores also correlate significantly with later achievement and adjustment measures like the Class Play and Classroom Teachers' Ratings may suggest that innate limitations may account for both a child's early and later lack of success at school. The fact that 3rd grade IQ correlations with later achievement and adjustment measures, though significant, tend to be of a lower order than those between 3rd grade grade point average and later scores would indicate that IQ can be only partially responsible. Furthermore, indications like those suggested by Deutsch (10) that IQ measures are themselves affected by early experience would also speak for the need for further research and program development directed toward the young school child. Even were innate limitations found to represent a serious barrier to the school success and adjustment of some children, this would underscore the importance of the early identification of such limitations and the development of an educational curriculum which would be optimal for children possessing them.

Conclusions, Implications and Recommendations

The major conclusion of this study is that the procedures for the early identification of school maladjustment which were applied during the primary grades have validity for predicting school functioning several years later. This has several implications. For one thing it suggests that a target population for major preventive efforts can be delineated early and that this population is indeed one which is likely to have continued difficulty functioning. Therefore, if effective programs can be created to assist this group to adjust better, a number of more serious potential problems can be forestalled and our society can benefit from a number of optimally functioning persons who might otherwise have become social problems of one kind or another.

Having demonstrated the efficacy of early identification procedures much yet remains to be done. It is altogether necessary, for example, to elaborate in more objective terms the clinical procedure whereby first grade children were selected as likely to have adjustment problems. Once this is done a relatively costly and time-consuming clinical procedure may be reduced to a more objective approach which can be applied more readily on a wide scale. Such work is already under way under the direction of the present writers and a preliminary report has already been made (23).

In addition to streamlining early identification procedures further, studies of the identification process are important as sources of information necessary to the development of optimally effective preventive procedures. It is one thing to know which group of children needs the most attention from the mental health worker. It is quite another to decide what kind of attention will be most effective. The question of how to prevent can be cleared up to a great extent once we have a clearer idea of what forces in the child's life predispose him to early school adjustment problems.

Another potential source of important information regarding such matters lies in the further study of longitudinal data on a given child. For example, it would be very worthwhile to contrast the life situations of the child who makes a poor school start only to retrieve and do well later and the one who never seems to recover. A number of other longitudinal studies of the IQ and adjustment measures of children in RT and NRT groups would further elaborate the dimensions of the loss they suffer as the result of a poor early start in school.

Regarding the preventive program which was utilized in the work in school #33 we must unfortunately conclude that our results are inconclusive. For the 1961 group some measures on which significant differences were found favored the E group, while others favored the C group. Attrition in the 1962 group resulted in remaining E and C groups which were not comparable to those studied as 3rd graders, therefore, the relatively few differences found between these subjects as 7th graders fails to permit one to conclude that the prevention program was ineffective. On the other hand there is little in the follow-up results to permit one to judge that it was unqualifiedly effective.

It is regrettable that nothing more decisive can be said regarding the enduring worthwhileness of the preventive program that was in effect in School #33. Still the findings regarding the early identification attempts and the longitudinal comparisons of 3rd grade and post-3rd grade measures both underscore the importance of creating preventive programs for primary grade children. The experience of this study should also make it apparent that any new preventive programs which are conceived should have build in to them the mechanism for early and later follow-up evaluations as well as the machinery for tracing students who leave the project schools. This will undoubtedly increase

the cost of such follow-up studies but studies of this sort are invaluable as guides to which approaches seem most worthwhile to pursue and which tend not to have any great effect on the total adjustment of primary graders.

If we fail to build and revise programs on a base of solid empirical evidence, innovations are likely to survive only as long as their creators remain subjectively involved in them and enthusiastic about them. Since the development of early identification and preventive procedures in the public schools represents such a drastic change from the traditional function of school mental health personnel, if such procedures are to win widespread acceptance they must be based on something more substantial than the enthusiasm of a few. It is the conviction of these writers that the kind of institutional change that such programs seek to bring about can most readily occur if there is tangible evidence of their effectiveness.

The experience in the school #33 prevention program has been useful despite the questions that remain concerning its long range effectiveness. It has represented a pioneering effort for a number of professionals who, for the first time, were casting off the only professional role they had known and venturing forth into uncharted waters. It might have been surprising if such an early voyage were to result in a great discovery. At the very least it has taught some lessons about navigation which have been most useful in setting up a somewhat different preventive model in which the writers and their colleagues have been engaged for several years now.

Therefore, it is felt that further support and encouragement of the development of preventive programs in public schools is very much needed. They should be planned with a realistic eye to what is necessary both to carry them out, and to evaluate their effectiveness on both a short and long term basis and such data should become the basis for program modification and future development.

Summary

The purpose of the present study was to follow-up as 7th graders two groups of children who had been evaluated for their potential for having adjustment problems as first graders, took part in a preventive program during their years in the primary grades, and were re-evaluated on a variety of adjustment and achievement measures when they were 3rd graders in the years 1961 and 1962 respectively. In the original study children in each year's experimental group designated as likely to have difficulty later (and labelled as Red Tag or RT children) were compared to those of the experimental group not so designated (these children were labelled Non-Red Tag or NRT). The other basic analysis compared children in the experimental school

where a preventive program was carried out to those in a control school where no porgram existed other than the one normally provided by the school mental health personnel. The present follow-up compared, as 7th graders, those children from the original study who remained in the experimental and control schools on the identical adjustment and achievement measures which were used originally.

Two hypotheses were offered. One held that RT children as a group whose school adjustment and achievement was demonstrably inferior to that of NRT children when they were compared as third graders, would continue to manifest this inferiority at the 7th grade level. The second predicted that E school children would as a group be better adjusted and perform more adequately as 7th graders than the C school children who never experienced the preventive program. Additionally, the longitudinal relationships between 3rd grade and 7th grade measures were to be examined.

The method essentially involved the examination for the two year groups of certain school record measures which had been studied earlier (attendance, nurse referrals, grade point average, achievement test scores, intelligence test scores) and the administration of tests and rating scales aimed at assessing adjustment. These included a scale teachers used to rate the classroom behavior of the child, a scale for measuring manifest anxiety, and a scale providing a sociometric measure for each child by his peers as well as a self concept type measure. Comparisons were made between RT and NRT groups and between E and C groups on all these measures. Longitudinal analyses involved comparisons of 3rd grade scores of all subjects with their 7th grade scores.

With respect to RT-NRT comparisons it was found that for both year groups the RT group was achieving more poorly than the NRT group and was regarded by peers and teachers to be less well adjusted. This indicated that the original clinical process for designating children as RT or NRT had indeed identified children who would manifest school adjustment problems and that, furthermore such problems were not ephemeral.

For the 1961 group E and C school comparisons found E schoolers achieving less well than C schoolers on some achievement indices like grade point average and grade achieved but better on others including several SRA achievement tests. On adjustment measures the E schoolers were found significantly less anxious than C schoolers but had poorer attendance records. It was hoped that the equivocality of these findings might be clarified by results with the 1962 group. Unfortunately, the comparison of the E and C school groups which remained available for this follow-up was so different from the original groups that were studied that whereas the original groups had differed significantly on seven variables, the curtailed groups differed on only two of these. Attrition seemed to have removed more of the better adjusted and higher achieving E schoolers than C schoolers. As a result the present findings when based on <u>all</u> remaining <u>S</u>s indicate that significant differences occurred on only three of 43 variables (all nurse referral measures). When sub-sets of the remainer sample were identified approximating existing conditions at the time of the third

grade criterion analyses some evidence was found suggesting better performance at the 7th grade level in the E school sample. These findings although they compensate for the spontaneous effects of attrition, introduce other biases of subject selection, particularly the tendency to select the best of the Es and the worst of the Cs. For these reasons, it appears that we cannot now render conclusive judgments about the enduringness of the positive effects of the prevention program which were evident at the 3rd grade level.

Correlations between a variety of 3rd grade and post-3rd grade measures indicated that some variables like 3rd grade grade point average, Classroom Teachers' Rating, and peer ratings related significantly to a number of post-3rd grade achievement and adjustment measures. This was taken as support for the idea that performance in the early school years sets a pattern which has great significance for later school functioning.

On the basis of these findings it was concluded that efforts at the early identification of children with potential adjustment problems were fruitful in uncovering problems which were sufficiently persistent that they could be detected at the 7th grade level. It was recommended that such identification procedures be refined and "streamlined" if possible so that they might lend themselves to wider applicability. Further elucidation of these identification procedures was also thought to be potentially useful in helping to frame prevention programs.

Despite the inconclusiveness of the findings with respect to the specific prevention programs being evaluated in this study, it was felt that there was great need for prevention programs to be set up within a research and evaluative framework. On this basis the refinement and modification of future programs could go forward on a solid empirical basis.

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